

processed photographic image. In this invention the light sensitive silver halide may be exposed from either the viewing side through the upper clear shield and transparent base in a right reading format or from the backside in a reverse reading format. Since the imaging member that includes a clear protective shield is substantially transparent, the exposure of the light sensitive silver halide may be made from either side. The preferred format is through the shield and the transparent polymer base. This method is preferred so an antihalation layer may be included on the same side as the light sensitive layer and as the bottommost layer. The antihalation layer helps to improve the sharpness of the image and prevents unwanted secondary exposure. In an additional embodiment of this invention the photographic element further comprises an antihalation layer. The antihalation layer may be either above the image layer and on the opposite uppermost side of the transparent sheet and upper shield or on the bottommost layer of the photographic emulsion. Placing the antihalation above the transparent sheet and the upper shield provides excellent scratch protection for the viewing side of the imaging element of this invention. In this case the antihalation should be in the most upper position because the antihalation materials need to be removed during processing. When the antihalation layer is above the image layer, the light sensitive layers are reversed exposed from the backside. In the preferred embodiment of this invention, the antihalation materials are below the outer bottommost layer of the light sensitive silver halide layers. This location is preferred because antihalation materials are easily removed during processing and can be applied at the same time as the light sensitive layers, thus avoiding another coating operation. In addition, the antihalation materials provide in the location a means to optimize the sharpness because of immediate proximity to the silver halide layer. Typical materials that are useful for antihalation are solid particle dyes and gray silver in a gelatin binder. The antihalation layer is typically a layer of gelatin with black or gray exposed silver. The purpose of such a layer is to provide improved sharpness and to prevent the reexposure of the silver grains once the light has passes through the emulsion. In a conventional photographic print in which the light sensitive emulsion is on top of the support, a considerable amount of light may be diffusely transmitted by the emulsion and strike the back surface of the support. This light is partially or totally reflected back to the emulsion and reexposed at a considerable distance from the initial point of entry.

This effect is called halation because it causes the appearance of halos around images of bright objects. Further, a transparent support also may pipe light. Halation can be greatly reduced or eliminated by absorbing the light transmitted by the emulsion or piped by the support. Three methods of providing halation protection are (1) coating an antihalation undercoat which is either dye gelatin or gelatin containing gray silver on the bottommost layer of the imaging member, (2) coating the emulsion on a support that contains either dye or pigments, and (3) coating the emulsion on a transparent support that has a dye to pigment a layer coated on the top. The absorbing material contained in the antihalation is removed by processing chemicals when the photographic element is processed. The dye or pigment within the support is permanent and generally is not preferred for the instant invention. It is preferred that the antihalation layer be formed of gray silver which is coated on the bottommost side furthest from the viewer and removed during processing. By coating the antihalation on the bottommost part of the backside of the transparent polymer sheet, the antihalation layer is easily removed during processing, as well as allowing exposure of the material from only one side. It has also been found that small quantities of TiO₂ or white pigment added to the non-light sensitive layers such as the ultraviolet layer furthest from the transparent polymer sheet or size overcoat layer of a typical emulsion provide improved exposure speed and sharpness.--

In the Claims

Please amend claim 22 as set forth below:

22. (Thrice Amended) A photographic element comprising a transparent polymer sheet, at least one layer containing an image formed by development of negative working photosensitive silver halide and at least one upper protective shield layer to protect the surface of said transparent polymer, and adhesively adhered to the lower side of said element a base material wherein said base is substantially opaque and has a transmission of less than 15 percent wherein said at least one upper protective shield provides protection from fingerprinting and spills of liquids and wherein said at least one upper shield layer has a roughness of between 0.01 and 0.06 micrometers at a spatial frequency of between 0.03 and 6.35 millimeters.

